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ABSTRACT

A study identified forces and factors that may emerge and influence the future of vocational education. While states may vary structure, organization, extensiveness, and resulting impact, the basic purpose of vocational education continues to be preparation for work. It also has the broad goals of the larger education system to be responsive to constantly changing social requirements. Past national influences have included federal legislation separating it from education in general by selective financing and emphasis on special populations. Critical factors in its future organization and structure are population trends and nature of the labor force. Considering available financial resources and economic pressures, possible enrollment is predicted to be lower at the secondary level, higher at the postsecondary. Possible cost predictions range from $4.35 billion (1976 level) to $5.25 billion, with federal funds representing (still) 10.9%. Past federal financial support has primarily been distributed by population. Federal shares of financial vocational education must be increased to equalize cost, which then would allow states to increase support for new or expanded programs for other groups. The federal government must also consider the states' ability to support vocational education and the need for additional funds to provide for special needs groups. (YLB)

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THE ORGANIZATION, STRUCTURE AND FINANCING OF VOCATIONAL EDUCATION: 1987

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PREFACE

Many events external to vocational education have had and will continue to have a direct influence on the future organization, structure and financing of public vocational education. An unstable economy, high rates of unemployment, and changing technology can have an impact on the types of vocational education that can be provided within the public sector. Federal legislation for vocational education as well as federal programs dealing with the education and training of individuals also will affect the future course of publicly conducted vocational education. There also will be a continued emphasis on participation of minority groups, women, and handicapped persons who will need preparation for employment. The changing population distribution (fewer secondary school students and an increase in the adult population) will have a direct influence on the organization of programs. Increasing costs of public education will force a new look at the traditional delivery of vocational education.

This study was undertaken in order to identify forces and factors that may emerge in the period ahead and which could influence the future of vocational education. The intent was not to propose a new philosophical base or make specific recommendations with respect to federal legislation. Both matters, however, will be factors to consider in the next several years,

An attempt was made to describe in broad terms some of the kinds of concerns vocational educators will need to address, rather than draw a definitive blueprint for vocational education. The consequences of change for vocational education are serious. Change will no doubt occur and persons associated with vocational education will need to examine and discuss the identified issues in detail.

If this study contributes to a base from which the vocational education community can debate the future role of vocational education, then it will have achieved its objective.

Robert S. Seckendorf

June 11, 1979

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I. INTRODUCTION

Many forces and factors may emerge in the next ten years which can have some influence on vocational education in all of the states. The diversity of systems in the nation will require states to examine individually their program goals and organization. Such forces and factors as changing population, make-up of the labor force, occupational structure, financial conditions, economic development, and technology can be examined in relationship to each state's program. Long-term goals can be projected in terms of possible consequences of various forces and conditions. These forces may impact on where and for what purpose vocational education will exist, or whether vocational education may exist at all in the future.

Concern over the very existence of vocational education has been debated for as long as it has been a part of the public education systems of the nation. The role of vocational education has been considered by educators, economists, politicians, and taxpayers in unending fashion since it was first included in the general school structure. The arguments, challenges, support, and denigration of vocational education have been documented in speeches, publications, studies, research undertakings, evaluations, and Congressional hearings. Its purposes have been examined. Its usefulness and effectiveness have been researched. Cost-effectiveness and cost-benefits of vocational education have been of

significant concern to many people in fields other than education. At the federal level, vocational education has been a subject of political debate in the administration and in the Congress. It has had its critics and supporters in state governments and within local educational structures as well. Business, industry, and organized labor have each found themselves on one side or the other with respect to the purposes of vocational education.

There has never been total agreement among persons who have an interest in vocational education with respect to its need, purposes, or even whom vocational education should serve. After almost three quarters of a century of publicly supported vocational education, even the practitioners within the field do not speak with one voice in regard to its purposes. As in so many publicly supported functions, separate and independent empires are built. Turf must be protected and defended. Billions of public dollars have been invested and still questions continue to be raised. What form should vocational education take? Is it part of a larger education system? Is it an education program at all, or is it a part of the nation's social welfare system? Can public vocational education's role be defined once and for all? Can its structure and organization be solidified and stabilized?

There is not, nor conceivably should there be, a single system of public vocational education consistent from state to state. To be effective, vocational education needs to

be justified as a major part of a total public educational effort.

The basic role of vocational education today and into the future may not be any different than it was in 1917. Although the language can be updated, the policy interpretation of the Federal Board for Vocational Education published in 1917 stated that vocational education was "...training for the common wage-earning employments."[1]

It further stated that vocational education

> ...may be given to boys and girls who, having selected a vocation, desire preparation for entering it as trained wage earners; to boys and girls who, having already taken up a wage-earning employment, seek greater efficiency in that employment; or to wage earners established in their trade or occupation, who wish through increase in their efficiency and wage-earning capacity to advance to positions of responsibility.[2]

Whatever new way it has been said, vocational education still is initial preparation for work, continued upgrading of skills associated with a job, and learning new skills for better and more responsible jobs. Other goals and purposes have been added over the years, new priorities have been established, new target populations have been identified, greater breadth of occupations have been included, but preparation for work has

1. Federal Board for Vocational Education, Bulletin No. 1: Statement of Policies (Washington, D.C.: U.S. Government Printing Office, 1917) p. 9.

2. Ibid.

not changed as the basic purpose of vocational education.

What then must be considered with respect to the future of vocational education? If there is a future for public vocational education it needs to be established within the context of the total publicly supported education system. At the same time, it must be recognized that preparation for employment exists in many forms outside that which is provided within the public education system. On-the-job training, organized apprenticeships, industry-based training programs, CETA efforts, the military, and even self-teaching are other structures that prepare people for productive employment. Some of these systems outside organized educational programs came into being long before publicly supported vocational education, and they will continue to function usefully for some time to come.

Current System of Vocational Education

Every state and territory provides vocational education to its youth and adults. The structure, organization, and extensiveness vary as does its impact within the education systems. It also has an impact on the business and industry community to which it provides persons prepared with the skills necessary to be useful and productive workers.

The commonalities among the states and territories are few. They are found primarily in somewhat similar objectives and in the occupational classifications of programs. Beyond that, the differences are more evident. In a study of

organization, governance, and financing of vocational education, Woodruff[3] pointed out that there are ten different state governance structures, five different types of state administrative agencies with varying responsibilites for vocational education, and five different levels of state authority over institutions that provide vocational education programs. In addition, at the local level there are six types of institutions, thirteen kinds of program administrative structures, and four different types of single and multi-district services. Beyond these general characteristics of local vocational programs there exist in systems that are classified as regional in nature eight types of agencies, five kinds of local boards, and six different arrangements for fiscal responsibility.

With respect to methods of financing local vocational education programs, Woodruff reported that states use eight different allocation systems and an equal number of cost calculation procedures. In many cases, different allocation systems are used for federal, state and local funds provided for the support of vocational education within the states.

One might conclude from this description that vocational education is a disorganized program and a non-system. On the other hand, these are descriptions aggregated from that which occurs in the states and territories. It is probably

3. Alan Woodruff, National Study of Vocational Education Systems and Facilities, vol. I, (Silver Spring Institutional Development Associates, 1978).

more important to be concerned with the extent of consistency within states themselves, rather than the fact that a single system does not exist nationwide. Woodruff's study provided evidence that, even within states, governance, organization, and financing are not consistent with respect to the various institutions and levels of programs operated by local agencies.[4] The structure of vocational education in states ranges from the few that have a single state board responsible for all education to those with four separate boards and state agencies responsible for various segments of the program. At the local level, the range of types of institutions is diverse and numerous. In many cases, two or three different kinds of institutions compete for the same clientele.

Nationally, in 1976 the program enrolled slightly over 15 million people, of which 8.86 million (58.8 percent) were at the secondary level, 2.2 million (14.5 percent) at the post-secondary level, and 4 million (27 percent) were adults. At the three levels combined, 1.87 million (12 percent) were disadvantaged and less than 300,000 (2 percent) were handicapped. These enrollment data included consumer and homemaking which still represents a significant portion of the secondary enrollments. Women accounted for 51 percent of the total enrollment, although this percentage drops to 36 percent when consumer and homemaking enrollments are not

4. Ibid, vol. II.

included either in the total or in the number of females enrolled.

In terms of distribution of enrollments by major occupational classifications, agriculture accounts for 8 percent; distributive education, 7 percent; health occupations, 5 percent; consumer and homemaking (useful), 26 percent; home economics (gainful), 4 percent; business and office education, 23 percent; technical education, 4 percent; and trade and industrial education, 23 percent. Without consumer and homemaking, the percentages are: agriculture, 11 percent; distributive education, 9 percent; health occupations, 7 percent; home economics, 5 percent; business and office education, 33 percent; technical education, 5 percent; and trade and industrial education, 31 percent.

In 1976, the latest year for which data were published by the United States Office of Education, slightly more than 2 million persons completed programs. Of this number, 55 percent were available for employment. Of those available for employment, 65 percent were employed in fields directly related to their training, 25 percent in fields other than that for which they were trained, and 10 percent were unemployed.

In the same year, 10.8 percent of the population age 15 to 64 was enrolled in vocational education programs. In terms of age groups, 52.3 percent of the 15 to 18 group, 17.6 percent of the 19 to 21 group, and 3.6 percent of the 22 to

64 group were enrolled. These percentages include enrollments in consumer and homemaking.

With respect to expenditures, the data published by USOE for 1976 indicate that almost 5 billion dollars was spent for vocational education in the public education system. Of this amount, 11 percent was federal money, approximately 34 percent came from state support, and local agencies accounted for the balance of 55 percent.

Vocational Education Within the Education System

The issue of vocational education as a part of a larger education system relates primarily to decisions concerning that which can best be carried out in school settings. Mangum[5] discussed in detail a rationale for choice of that which is best provided in a simulated setting within a school and that which can be provided better in alternative ways. While Mangum used investment of public funds to support vocational education for his viewpoint, he did establish a base from which decisions can be made.

The declaration of purpose contained in the Vocational Education Act of 1963[6] expressed a basic policy that attempted

5. Garth L. Mangum, "The Economics of Vocational Education," Fourth Yearbook of the American Vocational Association, ed. Melvin L. Barlow (Washington, D.C.: American Vocational Association, 1974) p. 250.

6. United States, 88th Congress, Second Session. Public Law 88-210: Vocational Education Act of 1963, pt. A, sec. 1, 1963.

to move vocational education from its earlier base in a few narrow occupational classes. In so doing, it established a viewpoint that vocational education within the public sector should be able to prepare all people for all kinds of occupations. To an extent, this broad statement opened the door to significant criticism of vocational education for not being responsive to all the employment requirements of the nation's businesses and industries or to all the needs of a constantly changing labor force.

In any attempt to clearly justify vocational education as an educational program, reasonable parameters must be established defining that portion of preparation for employment which can be provided institutionally. However, in addition to specific skill training, other aspects of education are important for persons entering the labor market. An educated workforce requires an ability to function not only within the specifics of a job, but to be able to move easily from one level of work responsibility to another, to adapt to increasing knowledge requirements of the work place and to function well as citizens and members of the community. The ability of individuals to function successfully and be economically self-sufficient requires much more than a vocational education. However, preparation for employment should be a major component in assisting each person to achieve economic well-being.

Separation of vocational education from general education is not a viable alternative for most persons entering the labor force. There are points in time, for some individuals, when vocational education should be provided as a targeted event, as opposed to a program in which vocational education is considered one element in the education of a person preparing to enter the labor market. Such a program, isolated from involvement with academic or supporting elements, would be specific skill training for adults who are unemployed or seeking new or upgraded skills in order to remain in the labor market. In such cases, the declaration of purpose in the Vocational Education Act of 1963 is more applicable with respect to its intent than when considered for those who are still in school.

When viewed as an integral part of the education system, the measures of vocational education's effectiveness change somewhat from measuring vocational education against social and economic criteria. The role of vocational education becomes one of assisting to meet societal concerns as opposed to being measured exclusively on the basis of its effectiveness in overcoming or alleviating specific social phenomena.

Vocational education, within the context of an education program, should be an available resource in dealing with constantly changing societal requirements. In other words, a distinction exists between the functions of vocational education. The measure of its effectiveness must

be distinguishable according to the function it is performing at any single point in time, or where it is serving specific groups of people or purposes. Vocational education can exist as both a component of an education program with goals compatible with those of the larger system, and also as an independent entity, taking responsibility separately and independently to meet clearly identified social and economic outcomes.

In attempting to draw a distinction between functions of vocational education, it is not intended to imply that education in general does not have broad social goals, but rather to indicate that vocational education's broad goals are those of the larger education system. In addition, vocational education can be responsive to conditions outside the generally accepted responsibilities of education. The implications are particularly significant with respect to vocational education policies as well as the financial support historically provided through federal funds.

An Historical Perspective

In order to understand the forces and the factors that may have an influence on vocational education in the period ahead, a brief examination of past national influences on vocational education can be useful.

Sufficient historical information exists which describes the roots of vocational education and its early development. The controversy of the early 1900s regarding the philosophical

base of vocational education, particularly the Snedden-Prosser and Dewey viewpoints, are described by Wirth.[7] Others, including Barlow,[8] Evans,[9] and Ellis,[10] have explored and documented the educational issues and the process of developing federal legislation concerning vocational education.

Vocational education has grown and changed since 1917. The effectiveness, weaknesses, and intent of vocational education's past efforts also have been documented over the years by national studies and reports. In particular, the Report of the Panel of Consultants in 1963[11] had the greatest impact on changing the direction of federal policies concerning preparation for employment within the public educational system. Its influence was as significant to vocational education as was

7. Arthur G. Wirth, Education in the Technological Society, (Scranton: International Textbook Co., 1972).

8. Melvin L. Barlow, ed., "The Philosophy for Quality Vocational Education Programs." Fourth Yearbook of the American Vocational Association (Washington, D.C.: The American Vocational Association, 1974).

9. Rupert N. Evans, Foundations of Vocational Education (Columbus: Charles E. Merrill Publishing Co., 1971).

10. Mary L. Ellis, "A Synthesis of Activities Leading to the Enactment of the Vocational Education Act of 1963" (Ph.D. Dissertation, Oklahoma State University, 1970).

11. U.S. Department of Health, Education and Welfare, "Education for a Changing World of Work," Report of the Panel of Consultants on Vocational Education (Washington, D.C.: U.S. Government Printing Office, 1963).

the Report of the Commission on National Aid to Vocational Education[12] published in 1914. The Report of the Advisory Council on Vocational Education[13] in 1968 had an influence on adjustments in federal law. The report of the General Accounting Office of the United States Congress[14] in 1974 made a major impact on federal legislation dealing with vocational education and resulted in the Amendments of 1976.

In most instances, the reports and changes in legislation made provisions for continuing vocational education, adjusting the methods used to allocate funds, and establishing criteria regarding program delivery. The past several reports also established the principle of participatory democracy in decision-making with respect to systems and priorities. Increased emphasis is being placed on advisory councils, inter-agency consultations and external planning groups as part of the process of vocational education today.

12. U.S. Office of Education, "Report of the National Commission on Vocational Education," Vol. I, 1914, in Leadership and Administration of Vocational and Technical Education, Ralph C. and William J. Weinrich, p. 67 (Columbus, Ohio: Charles E. Merrill Publishing Co., 1974).

13. U.S. Department of Health, Education and Welfare, "Vocational Education: The Bridge Between Man and His Work," Report of the Advisory Council on Vocational Education (Washington,D.C.: U.S. Government Printing Office, 1968).

14. United States Congress, General Accounting Office, What is the Role of Federal Assistance for Vocational Education? (Washington, D.C.: U.S. Government Printing Office, 1974).

The one area that has not been explored in any great depth is the organization and structure of the delivery system itself. At the time of the enactment of the Smith-Hughes Law, it was generally assumed that vocational education would be provided by the existing public school systems. It was not until 1963 that post-secondary institutions were recognized as valid agencies for delivering vocational education and therefore eligible to receive vocational education funds.

Most vocational education programs are conducted by local vocational-educational agencies under the authority of state educational agencies or boards. The federal interest, however, has pervaded the program since 1917 through the provision of funds for the partial support of activities in state and local agencies. To a significant extent, Congressional policy has been a controlling factor with respect to the way federal funds could be spent in support of vocational education programs.

A reflection of this kind of control was expressed by Barlow: "Controls on vocational education provided by federal legislation prevented the program from becoming emasculated by education in general, but produced an unwarranted kind of educational separatism that has dogged vocational education for more than half a century."[15]

15. Melvin L. Barlow, ed., "The Philosophy for Quality Vocational Education Programs," Fourth Yearbook of the American Vocational Association (Washington, D.C.: American Vocational Association, 1974), p. 262.

There was little doubt about which agencies were to deliver vocational education services under Smith-Hughes provisions. The Federal Board for Vocational Education included in its policy statement requirements that vocational education was to be less than college-grade and focused on preparation for useful employment. It was to provide full-time preparatory instruction for persons over 14, part-time continuing education programs for workers between the ages of 14 and 18, and evening classes for workers over 16 who needed supplemental instruction related to their regular employment.[16]

The George-Barden Act of 1946 provided essentially for additional funds for vocational education instruction and added several categories eligible for support with federal funds. It continued all provisions of the Smith-Hughes Act, but provided for some greater flexibility with respect to the funds appropriated by the George-Barden Act. In other words, the states had to conform to the original requirements in using Smith-Hughes funds but were able to expand services under certain conditions when they used George-Barden funds. These exemptions from the Smith-Hughes Act included the elimination of the 144 clock-hour requirement for part-time or continuing education classes. Also permitted was pre-employment training for persons over 18 without adhering to the full-time

16. Federal Board for Vocational Education, Bulletin No. 1: Statement of Policies (Washington, D.C.: U.S. Government Printing Office, 1917), pp. 59-60.

provisions for similar training for persons under age 18. Distributive education, however, was limited only to part-time and evening classes as prescribed under the Smith-Hughes Act for trade and industrial education.

Thus, until 1963 the organizational emphasis was on the public school as the vehicle for delivering vocational education. The primary target group was in-school youth. To the extent provided by law, supplemental classes for adults and pre-employment preparation for adults were permitted. The structural arrangements were specified on the basis of occupational classifications (agriculture, trade and industry, distributive education, and homemaking).

The Federal Board professed that the responsibilities for vocational education rested with the states and localities; the federal presence was merely to "purchase a degree of participation."[17] However, states received federal funds only for specific purposes and within requirements specified by law and policy of the Federal Board. This was clear direction for the organization and delivery of vocational education.

The result of having two sources of funds, some of which could be used for common purposes and other amounts used for similar purposes but under different conditions, caused administrative difficulties and problems with accountability. It certainly did not allow for the changing needs of the employment market or the people who would be entering the

17. Ibid, p. 7.

labor force. Structurally, the program continued to be delivered within the constraints of occupational classifications. Organizationally, vocational education was still based on the public school system as the delivery vehicle.

The extensive study conducted by the Panel of Consultants recognized that vocational education was still essential to the well-being of the nation and its work force.[18] Its recommendations were translated into law with the enactment of the Vocational Education Act of 1963. It made decided changes in terms of directing attention to the needs of groups of people. For the first time, the law included two-year colleges in the organizational scheme. The report and subsequent legislation created more flexibility with respect to providing for all kinds of occupations. However, it made no major departure from the delivery of programs within the occupational classifications then in effect, except for the inclusion of business education as eligible for use of federal funds.

The Vocational Education Act of 1963 was seen as a major redirection of vocational education. In many respects, it was. It started a movement toward an emphasis on people and their needs. The social welfare concept emerged with respect to serving persons who were, for the most part, excluded in

18. U.S. Department of Health, Education and Welfare. "Education for a Changing World of Work," Report of the Panel of Consultants on Vocational Education (Washington, D.C.: U.S. Government Printing Office, 1963), p. xvi.

previous policies. It recognized the need to provide facilities, and therefore allowed federal funds to be used to construct buildings. It created a degree of discretion with respect to policy development at the state and local levels by providing for more uses of available funds. This action permitted states and local education agencies to utilize funds to support expenditures according to the needs of the agency. There was, however, little if any attention paid to adjusting the way vocational education was delivered. Thus, the organizational aspect remained as it was before 1963, with the exception of including two-year colleges as recognized agencies appropriate for preparing people for some occupations.

The Vocational Education Act of 1963 did not repeal the earlier vocational education statutes. If it had been done, it might have created more flexibility. Rather than deal with the emotional and political circumstances surrounding the laws then in force, Congress permitted the states to, in effect, repeal the Smith-Hughes and George-Barden Acts by transferring funds received under those acts into the Vocational Education Act of 1963. When a state took such action, all of the restrictions of the earlier laws were eliminated. Not all states took advantage of this provision and some maintained policies relating directly to the Smith-Hughes and George-Barden Acts. It was not until 1968 that the George-Barden Act was repealed and funds provided under the Smith-Hughes Act were required to be used within the provisions of the 1963 Act,

as amended.

The 1963 efforts had little impact on the structure and organization of vocational education. In 1968, the Advisory Council on Vocational Education in its report discussed the concern for broadening the concept of vocational education, particularly at the secondary level.[19] Its viewpoint was expressed more as a philosophy and was not translated into policy, at least not in legislation affecting vocational education directly. To some extent it was the forerunner of career education.

The resulting changes in law contained in the 1968 Amendments created new requirements and mandates regarding the way in which funds were to be expended but did not reflect major changes from the organizational concepts still in existence. The law emphasized the role of post-secondary institutions in the vocational education scheme by requiring that a specific percentage of funds be expended on vocational education conducted in two-year colleges. However, substantive organizational or structural change in direction was not reflected in federal policy. The primary policy emphasis was related to an increased need to provide for special population groups such as the disadvantaged or handicapped.

The last expression of federal policy with respect to vocational education came in the Amendments of 1976. Just

19. U.S. Office of Education, Report of the National Commission on Vocational Education, p. xxii.

prior to the enactment of this law, the General Accounting Office conducted a study of the way in which the federal funds were used in the states. The concerns and recommendations of this office were reflected in Congressional policy regarding vocational education. Requirements were tightened and detailed planning processes as well as explicit systems for distributing funds among local agencies were imposed. Evaluation and accountability were addressed and emphasized.

Additional special interest populations were singled out for emphasis, including women and persons with limited English-speaking ability. Reorganization and structure were neither examined nor changed in light of the changing needs of people, the employment market, or the fact that major changes were taking place in the distribution of age groups in the population.

Federal policy, as reflected in legislation, addressed major concerns involving the delivery of vocational education in terms of people and their needs for occupational preparation. It set priorities in a manner which assumes that specific population categories are served. Federal policy has not tampered with the way in which states and localities deliver vocational education. Perhaps it was an oversight or less of a concern than the social welfare orientation of recent federal policy. It may also have been intentional--Congress deliberately leaving the matter of delivery system structure to the states. The laws themselves did not prevent any major

change in system structure.

A critical issue now remaining is whether federal policy and future legislation should tinker with that which is more a responsibility of the states than a function of the federal government. On the other hand, the way in which future federal policy is enunciated could have a decided effect on the states, if the past is any reflection of the future. With respect to the influence Congress has had on vocational education and the continued influence that body can have, it would seem that vocational education policy in the period ahead should take into consideration other factors in addition to the needs of people. Is it reasonable to consider the needs of the business and industrial community, the changing technology, the changing nature of employment patterns and the shift in the structure of the population? If so, the end result could be a more viable and improved system for the delivery of vocational education.

II. FORCES AT WORK ON VOCATIONAL EDUCATION

During its long history, vocational education has been moved in one direction or another by many forces and factors. In the beginning, it was the thinking and promotion by individuals who believed that there was a need for young people to be prepared to enter the labor market, and that new entrants should be trained well in order to be successful. The early debates helped to establish a foundation and a direction, some of which has not changed in many years. Federal legislation and federal dollars influenced the way in which vocational education was established and how it was structured. In many ways it established the clientele to be served. Since 1917, there has been a federal presence in vocational education, and its influence was at times significant and at other times minimal. In more recent years, especially since 1963, federal legislation and the federal presence has had greater influence than it had in the forty-five previous years. At the same time, forces other than federal legislation and increased federal involvement emerged to influence vocational education.

Federal legislation itself has been influenced by a number of forces or episodes that occurred during the past fifteen years. Examples of the economic factors involved included high rates of unemployment, first among mid-career workers and then in an overwhelming way the unemployment of youth. The number of educationally disadvantaged persons

increased to a point where it was a significant force in directing the efforts related to vocational education. The belief was that preparation for employment was a solution to the problems of under-educated individuals. Social changes and awareness of the problems of special groups, such as handicapped persons and women, influenced adjustment and new initiatives in vocational education.

That was the past, where it is believed the influences and resulting changes were made as a reaction to conditions or circumstances that reached a point of high impact on the economy, the social system, and on public education. Problems for which solutions had to be found did not develop so rapidly that they could not have been anticipated. Most of the issues were known. Policymakers were aware of them, but in one way or another the systems were slow to react to needs as they developed. When a problem became an absolute pressure, action was taken to develop solutions. High rates of unemployment, particularly among youth, do not occur overnight. The indicators of conditions that lead to such a phenomenon are identifiable. Predictions of economic downturns and recoveries are made frequently. While in some circumstances long-range forecasting might only be another form of guessing game, many processes exist to examine the future based on current situations and the probabilities associated with change. Social issues such as the education and employment of the handicapped, and the extent to which women have become a

significant segment of the labor force developed over time and not overnight. Changes in the job structure and the nature of jobs have been rapid, but again, predictable. Population changes, particularly with respect to their influence on the makeup of the labor force, can be forecast with reasonable accuracy.

In terms of specific influences on the future of vocational education, there are a number of factors that may be considered. In fact, if vocational education is to be responsive to the requirements of the labor force and business and industry in the period ahead, it is essential that those factors that have the most reliability in relationship to their predictability be considered early by policymakers. It must be recognized that certain economic conditions can influence the way in which vocational education is organized and delivered. There may be too much uncertainty in this area. The consequences of some economic conditions may not be reliable factors to use in determining the extent of responsiveness the vocational education program will have during the next eight to ten years. The health of the economy will relate directly to the delivery of vocational education, more so in terms of generating financial resources to support the program, as opposed to influencing the quantity or content of the program.

Social issues such as those associated with uneducated and under-educated individuals, the economically disadvantaged,

handicapped individuals, and women will need to be addressed. However, it is believed that these kinds of issues are related only in a peripheral way. Vocational education is but one of many resources that need to impact on overcoming current and future social problems. For example, vocational education cannot itself solve the youth unemployment problem of today or the possible unemployment problems that older workers will face in the future as jobs require more knowledge than manipulative skill. The cause of youth unemployment is not totally the lack of vocational education. The large number of young persons now entering the work force, the increasing number of women reentering the labor market, college graduates taking jobs for which their education was not required, and the increasing number of illegal aliens working at low level jobs all contribute to the competitiveness for jobs that typically had been taken by young people just out of high school. While the argument can be made that there are many causes related to youth unemployment, a case can also be made that vocational education can be a positive influence on reducing youth unemployment. At the least, it can assist high school age persons in preparing to meet the competition from other sources of workers.

Technological change relating to types of occupations and the levels of skill and knowledge required will also affect the future of vocational education in several ways. With respect to a structural or organizational influence, increases in the complexity of occupations will in all likelihood cause

an increased emphasis on vocational education beyond the high school level of specific skill training. Technological change, however, will have a greater influence on the content of programs and the kinds of occupational programs that are provided, than it will have on the way in which vocational education is organized.

There is reasonable evidence that organizational and structural adjustments will occur in vocational education. The nature of the age distribution of the population is probably the most apparent factor that will impact on the program. The beginning of a significant decline in the youth population has already begun. It will continue at least through 1990. Any future impact of large numbers of high school age persons on the labor market will not be felt until after the year 2000. Concurrently, as 1987 approaches, the baby-boom population born in the 1950s and 1960s will be moving through the labor force and will represent the largest portion of the working group. In 1987, slightly more than 55 percent of the population will be in the age group 25 to 49. The new entrants into the labor market will be better educated, with 50 percent having at least one year of college. A greater percentage of older workers will not have completed high school. It is probable that the competition for entry level jobs may not be as severe by the mid-1980s as it is today. Upward mobility may be more of a problem at that time. With a stable work force in middle level positions, opportunities to move out of entry level and low

skill jobs will be difficult. When openings do occur, employers will have a sufficiently large pool of persons from which to select. There is the likelihood that there will be much more horizontal movement of workers who remain at the same level but seek a change based on the possibility of increased wages and future promotions.

The consequences of significant change in basic concepts of dealing with vocational education in the period ahead may be accompanied by political and social pressures as in the past. Certainly, some decisions will be made in a manner that may attempt to respond to such pressures. It may not be easy to leave behind old ideas and old ways of achieving objectives of vocational education. Changes in response to new or different roles and imperatives have not come with ease in the past and may not in the future.

The future of vocational education may not be determined by the wishes of the diverse entities that exist within the education establishment. Vocational education is an education program first, but its role within the social context of serving the needs of people will need to be considered. The impact of economic, social and demographic changes should be the major consideration in structuring and organizing vocational education in the future. More specifically, even its role as an educational program may be based on its ability to assist in solving problems outside the education structure. Policymakers in vocational education will need the expertise of

responsible individuals from fields external to education in order to examine alternatives to present goals and programs. An understanding of emerging consequences of social, economic, and taxation policies, as well as political realities must be used to help make the functions of vocational education responsive to the needs of the period ahead.

There is logic in such an approach. Some factors that will influence vocational education in the future, while considered to be important in the decision-making process, are unstable in their ability to project with much accuracy conditions as they might be eight years away. An example is current economic conditions. There are, in effect, too many options and possibilities that emerge in terms of long-range forecasting. Particularly with the constantly changing conditions associated with the economy, it becomes difficult to project too far ahead. At this point in time, for example, economists are willing to talk about the alternatives during the next twelve to eighteen months but hesitate to express definitive possibilities for periods beyond that. On the other hand, there are data and projections that are more stable and also will have direct influence on the course of vocational education. Population and the nature of the labor force are in this category. With population as an example, the persons with whom vocational education will be concerned in the next eight to ten years are already born. There is much known also about the people already in the labor force. In terms of

policy development for vocational education, both kinds of data and information are needed. For this reason the vocational education community over the years will need to involve economic and social expertise in a direct and continuous way to assist in making determinations about vocational education.

For purposes of examining alternatives involving the organization and structure of vocational education at this time, those factors that lend themselves to stable and predictable data are used to demonstrate how interventions external to the education system will create change in the period ahead. These forces can illustrate how specific changes over the next several years will need to be considered by policymakers in order to establish clearly the role and nature of vocational education.

Population Trends

Population change will be a critical factor in the future organization and structure of vocational education, although it is but one of several forces that will influence the way in which vocational education is delivered. The changing population, in terms of age groups and the movement of people from one part of the country to another, can be used to consider the extent of possible enrollments at the several levels of a delivery system for vocational education.

In terms of future policies and the investment of public

money in vocational education, population changes must be considered. Traditionally, vocational education has, for the most part, been targeted upon the 15 to 18 age group, with varying attention paid to employed workers over the age of 25. Only in the past ten to fifteen years has significant emphasis been placed on the 19 to 24 age group. The following statistics will illustrate this point: In 1964, 47 percent of the total vocational education enrollment* were secondary-level students, 4 percent were post-secondary level students and 49 percent were adults. In 1976 (the latest year complete information was reported by USOE), 59 percent of the enrollment consisted of secondary-level students, 14 percent were post-secondary, and 26 percent were adults. In terms of actual enrollment growth, between 1964 and 1976 there was an increase at the secondary level of over 300 percent. The increase at the post-secondary level was about 1200 percent, and adult enrollments increased 80 percent. Described in another way, total enrollments increased from 4.5 million to 15 million. Of a total growth of 10.5 million, the secondary level accounted for 64 percent, the post-secondary level 19 percent, and the adult level 17 percent. Population projections

*The data in this section include consumer and homemaking which accounts for a significant portion of the secondary and adult enrollments.

published by the Bureau of Census[20] provide useful information regarding the way in which population changes will occur. These data will have an impact on the way in which vocational education is delivered in the future.

For the purposes of considering population as a factor in the future structure of a delivery system for vocational education, it is necessary to examine some of the major changes that are likely to take place. Detailed analysis of population changes and close examination of data would be more valuable as a tool for vocational education planners within states. In terms of the nation as a whole, the total population age 15 to 64 will continue to grow throughout the remainder of this century. Between 1979 and 1992 the population will increase by about 10 percent (145 million to 160 million). Zero population growth is not projected to occur through the middle of the next century. The Bureau of the Census does present the possibility of zero population growth in its low estimate projections; however, it appears as a possibility based only on unpredictable circumstances in the future. More critical than either a continuous increase in the population or the attainment of a zero growth point is the fact that significant change will take place in the age distribution of the population over the next thirteen years. Table 1 illustrates these changes.

20. U.S. Bureau of the Census, "Projections of the Population of the United States: 1977 to 2050," Current Population Reports, Series P-25, no. 704 (Washington, D.C.: U.S. Government Printing Office, 1963).

The high school age group (15 to 18) in 1979 represents 11.4 percent of the 15 to 64 age population. In 1987, this age group will represent 9.2 percent of the 15 to 64 age population, and in 1992 it will be 23 percent below the number of people now in the 15 to 18 age group. The two age groups typically of college age (19 to 21 and 22 to 24) will both drop from about 8.8 and 8.4 percent to 6.6 percent each in 1992. The reduction in population in these age groups will represent a combined decrease of about 15 percent. In 1979 the prime working age group (for purposes of this paper, ages 25 to 49 are used) represents 49 percent of the 15 to 64 population. In 1987, this group will represent 55.5 percent, and in 1992 it will contain 58.4 percent of the 15 to 64 population. If the older work group (50 to 64 years old) is added to the 25 to 49 group, the total represents 71.4 percent in 1979 and 76.2 percent in 1987. In 1992, 78.8 percent of the work force age 15 to 64 will consist of persons between the ages of 25 and 64.

These data indicate a decidedly significant adjustment in the age distribution of the population. When compared to enrollment data for vocational education, there is a possibility of significant disparity between the population groups and the delivery structure of vocational education, assuming that the percentage distribution of vocational education enrollments among the three program levels does not change from those of 1979.

Minority groups (the non-white population) represent a

TABLE 1

DISTRIBUTION OF THE POPULATION--AGES 15 TO 64

	1979		1987			1992			
Age Group	Population (000)	Pct. 15-64	Pop. (000)	Pct. 15-64	Pct. Chg. 79-87	Pop. (000)	Pct. 15-64	Pct. Chg. 87-92	Pct. Chg. 79-92
15-64	145,628	100.0	156,216	100.0	+7.3	160,117	100.0	+2.5	+10.0
15-18	16,650	11.4	14,301	9.2	-14.0	12,801	8.0	-10.5	-23.0
19-21	12,864	8.8	10,953	7.0	-15.0	10,517	6.6	-4.0	-18.0
22-24	12,143	8.4	11,925	7.6	-2.0	10,555	6.6	-11.0	-13.0
25-49	71,304	49.0	86,676	55.5	+21.5	93,569	58.4	+8.0	+31.0
25-64	103,971	71.4	119,036	76.2	+14.5	126,244	78.8	+6.0	+21.0

particular target group with respect to vocational education. They are also of considerable concern in terms of successful participation in the labor force. Table 2 provides data on the number of non-white persons within each of the age groupings (15 to 18, 19 to 21, etc.). Overall, the minority population by age groups follows somewhat the same pattern of distribution as the population in total. However, the proportion of the non-white population increases within the age groups each year. As an example, in the high school age group (15 to 18) in 1979, 16 percent was non-white. This proportion will rise to 19.5 percent in 1992. In the 25 to 49 age group the current proportion is 13 percent. In 1992, this proportion will reach 14.8 percent.

In comparing percentage changes between 1979 and 1992 for the population as a whole and for the non-white population, the concern for a growing minority participating in the work force becomes even more evident.

In the 15 to 18 age group, the net change during this period for the total population will be a drop of 23 percent. For the non-white population, the net decrease is slightly more than 7 percent.

No significant change is projected with respect to the proportion of women in the population. In each of the years examined, the female population falls on one side or the other of 50 percent. In terms of age structure alone, the proportion of women in the population is not a significant issue. There

TABLE 2

DISTRIBUTION OF THE NON-WHITE POPULATION--AGES 15 TO 64

	1979		1987			1992			
Age Group	Population (000)	Pct. of Age Gr.	Pop. (000)	Pct. of Age Gr.	Pct. Chg. 79-87	Pop. (000)	Pct. of Age Gr.	Pct. Chg. 87-92	Pct. Chg. 79-92
15-64	19,068	13.1	22,522	14.4	+18.1	24,382	15.2	+8.2	+27.8
15-18	2,673	16.0	2,614	18.3	-2.3	2,494	19.5	-4.8	-7.2
19-21	1,958	15.2	1,909	17.4	-2.5	2,002	19.0	+4.9	+2.2
22-24	1,792	14.7	1,970	16.5	+10.0	1,877	17.8	-5.0	+4.7
25-49	9,263	13.0	12,185	14.0	+31.5	13,860	14.8	+13.7	+49.6
25-64	12,646	12.1	16,029	13.5	+26.7	18,009	14.3	+12.3	+42.4

are, however, some other factors relating to women that will have a direct relationship to providing vocational education services in the future. Women are increasingly becoming involved in greater numbers in the work force. The Bureau of Labor Statistics suggests that by the early 1990s close to half the work force will consist of women. In addition, by 1990 approximately 60 percent of working age women will be in the labor force compared to approximately 48 percent in 1979.

There are some additional trends emerging with respect to women, again with direct relationship to vocational education. It appears that women are marrying at a later age today than in previous years. In 1960, 28 percent of women age 20 to 24 were single. The number rose to 45 percent in 1977. In 1960, 10 percent of women age 25 to 29 were single. In 1977, it rose to 16 percent. The percentages of women who were single at age 30 are about equal for 1960 and 1977. There appears to be some agreement on the part of the demographers that the trend toward later marriages or no marriage on the part of women will continue through the 1980s. The reasoning is related in part to the number of children born in the 1950s who now make up a large share of unemployed persons in the labor market. Children born in the baby boom era are in sharp competition for scarce jobs. The unemployment rate among the population in the early twenties is high. Economic conditions such as high unemployment rates and scarce jobs are not conducive to marriage and family raising.

Women who do marry will have fewer children or no children. The fertility rate has been declining during the past several years, and it is projected to continue declining into the 1980s and early 1990s. Demographers are predicting a slight increase in the fertility rate in the 1990s on the fact that, with a smaller number of people in the 18-24 age group, employment will increase for this group making the economic conditions more conducive to marriage and larger families. David Goldberg[21] described in considerable detail some of the issues surrounding the changing nature of families and population changes.

The divorce rate among women has been increasing in the last ten years and appears to be increasing still. Many divorced women are not remarrying. This has the effect of placing increasing numers of single or no-longer-married women in the labor force.

Some possible concerns for vocational educators to consider in planning the future delivery of vocational education emerge from an examination of the changing structure and nature of the population typically in the work force. One of the prime target age groups for vocational education will, in all likelihood, be those persons between the ages of 25 and 49. This group will represent the largest age group in the labor force and will face constant changes in job market skills. People in

21. David Goldberg, The Future Population of the United States - Some Speculations. Paper presented at the annual meeting of the American Vocational Association, Dallas, December, 1978. Ann Arbor: University of Michigan, 1978.

this age group will need continuous training and re-training. At the same time there should be a more stable work force. More of the work force will be in the older age group and therefore will be more productive. At the same time there will be fewer young workers to compete for jobs.

Based on the data about women it appears that in all likelihood they will stay in the labor force for longer periods of time. There will be less early exiting among women workers to marry and raise families. This condition will create a need to provide opportunities for advancement and promotion. A greater emphasis will need to be placed on upward mobility and the desire on the part of women for increased income. With a declining younger population, unemployment among youth may get a little better, but it may be a problem in the immediate period ahead. With more women and older workers in the market place, jobs that once were the territory for high school completers may be taken by women. In addition, college completers who cannot find jobs that require a college education will also be competing with high school graduates for limited jobs.

Minority youth unemployment may continue to be a significant problem. Even though there will be a decline numerically in this group, they will represent a larger proportion of new entrants into the labor market.

Mobility of the population is not as much a national problem for vocational education as it is a state or local condition. However, it should be considered in terms of some

policy areas. Mobility is no longer the exclusive ritual of retired persons moving from population centers in the northeast to the warmth of the south and southwest. Young singles and young families also are following the sun. Perhaps this is because some industries are moving, and so are the jobs.

A trend also is emerging in regard to movement from major population centers--the cities--to more rural settings. In this case, people are not moving to the suburbs of cities but to areas once removed from the accepted definition of suburb. Many young people are in this group. They are not commuting long distances back to city jobs but are finding work or are opening businesses themselves in rural areas. This group of people seems to be searching for a different life style--certainly not a higher income.

The Nature of the Labor Force

The changing population structure will have a significant influence on the vocational education system. In a like manner, the changing nature of the work force and possible employment patterns will have an additional influence on policies in regard to the areas of emphasis within the vocational education program. Consideration must be given to specific projected changes in order to relate vocational education directly to the populations requiring either preparation for initial entrance into the labor force or continued retraining.

In most respects, the labor force is related to the

population distribution. Projections of its composition are based primarily on the arrangement of age groups in the population over age 16. Presently, population structure and labor force structure parallel each other, but the labor force structure is affected by the rate of growth of the overall labor force and the age-sex participation ratios of the population in the labor force. With respect to the significance of the effect of population change and age-sex participation rates for specific groups, Johnston[22] indicated that, while both factors are important in terms of the makeup of the future work force, 89 percent of the changes in the male work force and 68 percent of the changes in the female labor force during the period through 1990 will be directly attributable to population changes.

The Bureau of Labor Statistics projections for the work force indicate that there will be an increase in the overall size of the work force but that its rate of growth during the period 1980 to 1990 will be less per year than in the past. The labor force will reach over 103 million people by 1980 and exceed 116 million by 1990. The 13 million increase during the ten year period is about 3 million less than the growth in the decade of the 1970s.

The median age of the labor force, which has been declining steadily in past years, is expected to be 35

22. Denis F. Johnston, "The U.S. Labor Force: Projections to 1990," Monthly Labor Review 96:7 (July, 1973): 22-31.

by 1980 and increase to 37 years by 1990. The decline of median age during the 1960s and 1970s was due primarily to the large influx into the labor market of young workers. The projected decline in the 16 to 24 age group in the period ahead and the major increase during the 1980s of the group 35 to 44 years old (projected to be almost 900,000 a year between 1980 and 1990) influence the median age of the labor force.

Young Workers

The age group 16 to 24 made up a significant portion of the work force in the 1970s, primarily based on the increased birthrate of the 1950s. However, the reduction in the birthrate beginning in the 1960s is reflected in a significant decrease in the proportion of the work force in this age group in the period ahead. The number of young workers is projected to drop to about 20 million in 1990, slightly more than the number in this age group during the 1970s. One change in the makeup of the young work force will be in the participation rates of men and women age 16 to 24. It is projected that, compared to 1970, there will be almost half a million fewer men and about a million more women in the work force of 1990 within the 16 to 24 age group. In total, the age group 16 to 24 represented 23 percent of the labor force in 1970 and is projected to be 18 percent in 1990.

Older Workers

The Bureau of Labor Statistics classifies older workers in the age group 55 and over. In 1970, this labor force group contained 14.5 million persons and will grow to about 16 million in 1990. Even though the actual number of persons over 55 in the labor force will increase, the proportion will decrease. In 1970, older workers made up 17 percent of the total labor force. This group will be 14 percent of the labor force in 1990. In terms of workers over 65, their numbers will remain fairly constant through 1990, even though the population over 65 will grow significantly during this period. To an extent, this situation, as well as the overall decline in the percentage of the work force represented by the 55 and older groups, can be attributed to a tendency for earlier retirement as well as better and more stable retirement plans provided by employers. There will be a decline in the participation rate of older men in the work force with a drop from 11 percent in 1970 to 8.5 percent in 1990. The participation of older women will remain at about 6 percent in comparing the two time periods.

Women

The overall representation of women in the labor force is projected to change insignificantly between now and 1990. It will remain in the vicinity of 38 percent. Part of the reason lies in the decline in population age 16 through 24 as well as the fact that even though the number of women of prime work age

(25 to 34) will increase significantly, the prospect for marriage and family raising will be better than in the past ten years. Therefore, the actual number of women in this age group who will be in the labor force will not increase significantly. The increase of women in the work force will come in the age group 35 to 54, but will not be large enough to offset the decline in numbers of workers under 35.

In terms of the percentage of participation of women in specific age groups, increases are projected through 1990. For the group 20 to 24 in particular, the percentage of participation will increase from 57.5 percent in 1970, to 63 percent in 1980, and to 66 percent in 1990. Moderate gains of 1 to 3 percent will occur for the groups age 16 to 19, 25 to 34, and 35 to 44 when comparing 1970 to 1990.

Educational Levels of Workers

The educational attainment of persons in the labor force can have an influence on the kinds of vocational education programs provided in public education agencies, as well as the target groups served by vocational education.

In general, the educational levels of the labor force will change dramatically in the period ahead. In part, the changes relate to a projected increase in the median age of all workers by 1990. The number of persons completing high school has been increasing during the past decade. There is an increase in the flow of new entrants into the work force who have completed four years of high school. As an example, in

1970, 39 percent of the labor force 16 years and over had less than twelve years of school. In 1980, this percentage will be 27, and in 1990 it is projected to drop to 20 percent. In terms of persons sixteen years and over in the labor force with one or more years of college, 25 percent were in this category in 1970. In 1980 it will be 32 percent and in 1990 it is projected to increase to 40 percent. By 1990, 80 percent of the total work force will have completed at least four years of high school.

Significant changes in the educational levels within specific age groups will also be important to examine in terms of the future structure of vocational education. There also will be implications for employment patterns of new entrants into the labor force and possibly for the current concern with respect to the high rates of unemployment among youth. In comparing the educational levels of young workers (18 to 24) based on projections for 1980 and 1990, at both points approximately 50 percent of this age group will have completed four years of high school. The number with less than four years of high school will drop from about 22 percent to 18 percent, while those with at least one year of college will have increased from 29 percent to 34 percent. While these indications reflect an increase in the educational level of workers in this age group, this percentage distribution implies more importantly that young people may stay in school longer and enter the labor market at a later age than in

previous years. To some extent, this phenomenon, coupled with the decline in the population aged 16 to 24, could mean a possible reduction in the youth unemployment rate. In other words, it is possible to conclude that the educational system would in effect become a "holding tank" or "aging vat" in the same way that, for example, the military was prior to the establishment of the all-volunteer army.

For the group who will be entering the labor market in the next several years (those who would be in the age group 25 to 34 in 1990) 50 percent will have had one or more years of college and 42 percent will have completed high school. Ten percent will not have completed twelve years of school. For comparison, of those who entered the labor market thirty years ago (who will be 55 to 64 in 1990), 28 percent have one or more years of college, 42 percent graduated from high school, and 30 percent have less than twelve years of school. This comparison displays the dramatic change in the education level of workers over a period of time.

The implications for vocational education in the period ahead are significant. It may demonstrate a need for vocational education to continue to be available at the secondary level. At the same time it may require an increased need for vocational education beyond the high school level, particularly for programs in two-year colleges.

It is possible that there will be keen competition for jobs in the period ahead among new entrants into the labor

force. The advantage in obtaining jobs may well be based on the level of education a person has had, as opposed to the extent of a person's skills. Other things being equal, it is probable that persons who have completed occupational preparation beyond high school may be in a better position to obtain jobs. They may also replace high school completers who had specific skills based on a vocational education. It is also possible to consider that the increased competition between workers with varying amounts of education could result in employers considering other criteria for selection, such as potential for upgrading and stability in employment. The latter may be important, particularly with persons who have had some college and find themselves in jobs not related to their educational level. This group would have a tendency to be dissatisfied and to change employment frequently.

Those with less than a high school education--young workers who dropped out of school--will be in a more serious situation than in the past. The large number of new entrants into the labor market with twelve or more years of school will also have an effect on older workers with less education. If significant changes take place in the skill requirements of the labor market, older workers with less education could be displaced by better educated persons. Retraining of older workers so displaced will also present a problem because of the lower educational levels of this group.

Changes in Occupations

The total labor force will continue to grow during the next ten year period, but at a slower rate than in previous periods. Predictions are that only half the number of new jobs will be added in the 1980s as compared to the 1970s. The Bureau of Labor Statistics projects the rate of growth at 1.22 percent per year as compared to earlier increases of 1.8 percent a year.

Growth in the labor force, however, does not account for all the job openings that will occur. Most new job opportunities will be based on a need to replace present workers. The Bureau of Labor Statistics data indicate that there will be about 4.7 million job openings annually through 1985. If this rate continues, close to 50 million new job openings will occur through 1990. Of these, two-thirds will be for replacement requirements in the labor force. To an extent, replacement needs may be considered as a possible influence on the current high unemployment rate among young workers. Coupled with the probability that persons will be staying in school longer and that there will be fewer young persons entering the labor market, it is entirely possible that there will be a shortage of new workers by 1990. Joseph Froomkin expressed a similar view in this way:

> By the mid-1980's, the cohort of 18 year olds will contain 17 percent fewer members than the comparable cohort of the mid-1970's. The total number of youngsters will be considerably smaller

> than it is today. This means that, most likely, instead of worrying about teenage employment rates of some 13 percent, we may be decrying the shortage of young workers!...With highly educated workers still in oversupply and still burdening the labor market, the knee-jerk reaction may be to get the kids out of school and into jobs.[23]

Replacements will be the major need in occupations that employ large numbers of women, and in industries that presently employ large numbers of older workers, where replacement rates are high. While replacement needs will be a significant aspect of employment possibilities, newly created jobs and job classifications will be an important consideration in some industries, particularly in occupational areas which may undergo rapid changes based on new technology.

Little major change will take place in the distribution of workers among the major occupational classifications, except for farm workers where their percentage in the total labor force will drop from 2.1 percent in 1980 to 1.6 percent in 1985. In all likelihood, it will continue to drop beyond that date. In other areas, white collar workers will continue to represent about 53 percent of the labor force, blue collar workers about 32 percent, and service workers about 13 percent. Within these classifications some redistribution will occur, but will

23. Joseph Froomkin, "Needed: A New Federal Policy for Vocational Education," Policy Paper No. 6 (Washington, D.C.: Institute for Educational Leadership, The George Washington University, 1978), p. 43.

be minimum. As examples, professional and technical workers will increase about 1 percent, operatives will drop about .5 percent, and service workers other than private household workers will increase about 1 percent. In comparison to the overall growth rate of the labor force, professional and technical as well as clerical occupations will grow faster than the growth rate of the total labor force. All other occupational groups will grow, but at a slower rate than that of the labor force as a whole. Although the total of service workers will grow at a rate slower than overall growth, a major decline is projected for domestic or household workers. If this group is subtracted from the service worker classification, service workers as a group will increase at a much higher rate than the total labor force.

The overall distribution of workers among the major occupational classifications will not change dramatically in the period ahead. Job requirements within specific occupational groups may change. As an example, in the clerical field new kinds of equipment and processes may reduce the need for some clerical occupations but will require new skills for the existing work force.

An increased educational level of the work force can have an effect on the number of people available for low skill or "dirty" jobs. If this occurs, one of two things may happen. First, the jobs may be eliminated by substituting machinery or new technology. Second, if the job must be performed, it is

possible that the wages paid will increase and fringe benefits and other amenities of higher skilled jobs may be provided workers in the low skill or "dirty" jobs.

A detailed discussion of the issues surrounding the problems associated with employment in lower level jobs is contained in a study by Wool. Some of the implications include the following:

> The better educated young workers who have entered the labor market, or who will be entering it in the coming decade, can expect increased competition in seeking preferred jobs depending upon their area of specialized training and may be forced to stay in or accept jobs not utilizing their education.
>
> Minority workers and women, seeking a fair share of the preferred jobs, face increased competition from "majority" worker categories, with a consequent danger of increased confrontations on issues relating to equal employment opportunity.
>
> Although employers will have a greater choice of applicants in many professional, managerial, and other higher status occupational fields, they may be faced with high job vacancy and turnover rates--and with related problems of poor worker morale--in low-skilled, low-status jobs.
>
> Public manpower agencies and employment services, whose primary clientele in recent years...consisted of youth and "disadvantaged" workers, could be faced with conflicting demands for their services on the part of better educated workers seeking placement in higher status jobs, and of employers, who--on the other hand--may mainly need assistance in filling their lower level jobs.

> Institutions of higher education, already beset by serious financial difficulties, will be forced to re-evaluate their educational programs and their enrollment prospects in the light of the altered labor market outlook for college-trained personnel.[24]

From the point of view of vocational education, the trends in employment patterns could be significant in determining the kinds of programs that would be offered by local agencies, and also relate to planning at the state level. As a policy issue with respect to the nation's vocational education program as a whole, it would seem that future concern may need to be given to the relationship among levels of programs and the clientele for whom vocational education would be useful. Skill levels of new jobs and the changing nature of jobs may require increased attention to those already in the labor market whose skills will have to be retooled in order to maintain their employment rather than preparing individuals for immediate entrance into the market place.

Vocational education planners and policymakers may need to examine subtle changes in job requirements, education levels of the labor force, and the distribution of jobs among the occupational classifications. In this respect, short-term projections will probably be more useful than long-range

24. Harold Wool, "Future Labor Supply for Lower Level Occupations," Monthly Labor Review 99:3 (March, 1976): 29.

guesses. Program deliverers will need to create an ability to change and redirect efforts on short time lines in order to maintain a viable public delivery system.

III. PROJECTIONS OF ENROLLMENTS IN VOCATIONAL EDUCATION IN 1987

There are many circumstances that can come into play when projecting enrollments in the period ahead. The following possibilities are not intended to forecast what will actually take place. The data used are national in scope. The forces that may impact on future enrollments may exceed those described. More important than the actual projections and the basis used for conclusions is the fact that some change will take place in each state because of the population changes and other factors. Policymakers at the state level will need to use factors that are more specific to the characteristics of each state.

The possible enrollment projections for vocational education in 1987 were based on the assumption that public vocational education will continue in secondary and post-secondary institutions, both of which also will serve adults. Alternatives were developed with the belief that major structural changes, such as complete elimination of vocational education at the secondary level or a shift of all adult vocational education to agencies outside the public education systems, will not occur. Current enrollment patterns were used as a base, and estimates of future enrollment were related in several ways to changes that are projected for the population in the period ahead. The descriptions relate to possible

numbers of persons in various age groups that might be served. Several alternatives were used regarding conditions that may have a bearing on the distribution of enrollments among the levels of programs.

In order to use the projections in relationship to the impact they may have on the labor force, enrollments in consumer and homemaking (useful) were excluded. This was not done to reflect any belief that the homemaking program is less important, but rather to target on those vocational education programs that provide direct employment preparation. The projections should be more realistic, particularly at the secondary level where almost one-third of the reported enrollments are in consumer and homemaking.

All of the projections are based on the enrollment distribution reported by the United States Office of Education for 1976.[25] These are the latest published enrollment data. Population data for 1976 were used in order to make the projections.

Possible Vocational Education Enrollments

There are several methods which can be used to develop possible enrollments for 1987. As a start, vocational enrollments in 1976 represented 8.3 percent of the total

25. U.S. Department of Health, Education, and Welfare. Office of Education, "Summary Data - Vocational Education - Fiscal Year 1976," Vocational Information No. I (Washington, D.C.: U.S. Government Printing Office, 1978).

population age 15 to 64. Within age groups, enrollments represented 36 percent of the 15 to 18 age group, 17 percent of the 19 to 21 group and 3 percent of the 22 to 64 age group.

In considering enrollment possibilities at the secondary level, three alternatives were used. The first assumed that enrollments at this level will not decline in actual numbers in the next several years, the second related to the percentage of the 15 to 18 age group enrolled in 1976 (which was 36 percent), and the third projected that enrollments at the secondary level will decline at the same rate as the population age 15 to 18. The population decline in this age group is expected to be 18.4 percent between 1976 and 1987.

At the post-secondary level, two possibilities were considered. The first represents an increase in enrollments of 64 percent over 1976, based on the projected increase developed by the National Center for Educational Statistics.[26] The second possibility was developed on the basis of costs of programs and the assumption that the total cost of vocational education in 1987 will not change from that of 1976. Costs of the lowest possibilities at the secondary and adult level were subtracted from the total cost and the remaining amount was divided by the cost per person of post-secondary programs to produce a possible enrollment somewhat higher than the actual

26. U.S. Department of Health, Education and Welfare. National Center for Educational Statistics, Projections of Education Statistics to 1986-7 (Washington, D.C.: U.S. Government Printing Office, 1978), p. 24.

enrollment at this level in 1976. Two other possibilities could have been considered at this level. First, the enrollment could be projected to remain at the current level and second, the enrollment could be calculated, taking into consideration the projected decline in the population age 19 to 21. While it would have made for a more complete consideration of options, other data with regard to the education level of the work force in the period ahead indicate a decided increase in the number of persons who will enter the labor force with one or more years of college. Therefore, it is assumed that there will be some increase in enrollments at the post-secondary level. For this reason, projections that reflected stabilization or decline were not used.

Enrollment possibilities at the adult level considered several alternatives. The first was based on enrollments at this level continuing at the same levels as in 1976. Other possibilities were based on the assumption that total enrollments will rot exceed the percentage of the population 15 to 64 enrolled in 1976 (8.3 percent). In these cases, adult enrollments were calculated as the remainder of the total after subtracting various possibilities at the secondary and post-secondary levels. In addition, consideration was given to enrollment increases at the adult level based on the increase in the 22 to 64 age group in the period ahead (18.8 percent) and also the possibility that available space created by decline at the secondary level could be used for adult programs.

Obviously, no one combination of possibilities for the three levels can be selected as the most likely alternative for 1987. It is possible, however, to examine the ranges for each program level as well as total enrollments and consider possibilities within each of the ranges that are more likely to develop than others. Based on the considerations described, the range of total enrollments could be from 11.3 million to 13.7 million persons. This range reflects a drop of about 300 million from 1976 levels to an increase of slightly more than 2 million enrollees. At the secondary level, the range is from 5 million to 6.16 million. The lowest level reflects a sharp decline from the 1976 enrollment, based on the possibility of enrollments dropping at the same rate as the population in the age group 15 to 18. The high end of the range assumes a continuation of the same absolute number of secondary school students in vocational education as there were in 1976. The range at the post-secondary level is more limited and is based on the considerations described earlier. The increase at this level is projected to be between 800 thousand and 1.4 million. At the adult level the range of possibilities starts without an increase over 1976 to a high of 5 million persons. The high end represents an increase of 1.7 million enrollees over the 1976 level.

In examining each of the ranges and the possibilities within each range, several likely possibilities exist based on financial, economic, and other factors.

The extent of available financial resources from public sources may have a decided effect on enrollments in 1987. This will be true particularly if the rate of inflation continues and the possible sources of additional public tax funds have limitations placed upon them. In addition, federal funds targeted on training programs outside those provided by the public educational systems will affect the potential base of population that may be served by public vocational education programs.

Under the financial pressures which school districts find themselves, enrollments at the secondary level may decline if, for no other reason, large financial savings can be made by educating fewer students. With costs continuing to increase, it may be possible for school districts and states to hold actual dollar expenses level merely by permitting enrollments to decline at the same rate as the high school population. Without large amounts of additional federal dollars infused into the maintenance of current programs to equalize the burden of local districts, they may be at the limits of their resources. This source may not exceed the current actual expenditure for high school vocational education. A possible reduction in high school vocational education enrollments of one million students will create a significant cost reduction. Maintaining the actual number of enrollees at the secondary level as in 1976 is somewhat unlikely. To do so would require that 43 percent of the high school age population be enrolled in vocational education,

exclusive of consumer and homemaking. Maintaining that level of participation seems to be unrealistic. The students will not be there, nor will the funds be available at the local level. The best estimate for secondary school enrollments in vocational education would be about 5.1 million, slightly more than the lowest possibility but not quite reaching the present 36 percent of high school age students.

Growth in the area of post-secondary program enrollment will probably come despite the decrease in the number of persons in the age group 19 to 21. If the enrollments increase as high as the projections indicate, they will represent approximately 32 percent of the people in this age group. Although the projection is based on a possible increase of 64 percent over enrollments in 1976, and the discussion relates primarily to a target group within a narrow age band, some of the increased enrollment will most likely come from persons over age 21. There are data to indicate that the average college-going age is increasing. In addition, an increase is projected for the number of new entrants into the work force in the period ahead who will have some education beyond high school.

The lower option with respect to a possible enrollment level in two-year college vocational programs, would be based primarily on the extent of financial resources available for public education. With an increase in the knowledge level requirements of jobs in the next ten years, emphasis should be placed on increasing the use of two-year colleges to prepare

persons for entrance into the labor market. If local sources of funds to support vocational education beyond high school become limited, this area of vocational education will require a heavier commitment of federal funds in order to meet the job demands of the future. For purposes of examining the long-term financing of vocational education as well as those levels of the total future program that will require significant attention to role definition, the higher enrollment projection of 3.53 million persons can be justified.

Enrollments at the adult level probably have more conditions and possibilities associated with projections for the future than either of the other two levels. The possibilities range from zero increase to 1.7 million people. For one thing, the current role of adult vocational education appears to emphasize upgrading and retraining for persons who are already employed. The 1976 data published by USOE indicate that 75 percent of the enrollment falls within the categories of supplemental and apprentice related instruction. It is not unusual for these programs to be supported with limited public money, including federal funds. Many educational agencies require that adult vocational education operate on a self-sustaining basis. That portion of the enrollment at the adult level that targets on preparatory vocational education usually utilizes federal funds and in some cases state and local funds. Here again, the amount of money used for this purpose is limited and certainly not sufficient to meet the needs of the

target group. In addition, other federal programs, particularly CETA, are involved in the preparation of adults for entrance into new jobs. Most of these programs, however, are identified with educationally or economically disadvantaged persons and may not reach other adults in need of training for new jobs. The possibility of local educational agencies shifting the savings they developed from declines in secondary school enrollments to meet the needs of adults is remote at best. It will be even more remote with the substitution of preparatory programs for supplementary activities, where a large portion of the costs can be borne by employed adults seeking increased skills and knowledge to maintain their jobs. Significant increases in enrollment of adults will probably not occur without a dramatic shift in the utilization of federal dollar resources. At the same time, increased knowledge requirements of jobs could have the effect of pushing older workers out of their jobs, replacing them with better educated young workers, particularly those with one or more years of college. If this occurs, there will be a greater pool of adults who will require retraining as well as increasing current skills in order to retain jobs. Vocational education systems will need to be equipped to serve the number of persons projected on the high end of the range. However, considering the economic conditions of the educational agencies and the probable continuation of special programs operated outside public vocational education systems, a middle range of approximately 4 million adults would

be a supportable projection of adult enrollments in 1987.

Using the enrollments selected for each of the three levels, the total enrollment projected for 1987 would be approximately 12.5 million, an overall increase of about one million from 1976.

Based on Woodruff's study data on the utilization of vocational education facilities[27] and observing the caveats relating to the methodology for determining utilization rates, there would be space in currently available facilities to absorb a possible projected increase of one million people between now and 1987. Obviously, the data are aggregated at the national level and differences may appear in specific states. Therefore, most states should have some capacity to serve a projected increase in possible enrollments. Lower rates of utilization currently appear in two-year colleges and in regional or area vocational education facilities both at the secondary and post-secondary levels.

Assuming that the declining population in the age group 15 to 18 will have a decided effect on the number of secondary students served, facilities could be available to serve a larger group of adults by shifting emphasis and utilizing both secondary and post-secondary facilities for this group.

Within the context of this discussion, the implication should not be drawn that the secondary vocational education

27. Woodruff, National Study of Vocational Education Systems and Facilities, vol. I, p. 140.

program should be intentionally reduced. If 36 percent of secondary students is an acceptable portion of the in-school population to be served by vocational education, the projected decline in this age group during the next ten years will of itself reduce the number of high school students in vocational education.

Although the possibilities described are based on the assumption that the percentage of the 15 to 64 population served by public vocational education will not increase significantly, thought needs to be given to the issue of whether the projected increase is acceptable or whether the goal should be higher. If it is possible and desirable to increase the overall size of enrollments in vocational education, the capacity, for the most part, is already in place. Using the highest utilization rate reported by Woodruff (about 85 percent), and using the present enrollment of about 15 million people, the facilities can absorb an additional 3 million people.

The overall figure projected would be consistent with the number of persons that would be placed in the job market each year as a result of completion of programs. The Bureau of Labor Statistics estimates that approximately 4.7 million job openings will occur each year through 1985, close enough to 1987 to use the figure for comparison with a possible output from the vocational education system projected for 1987. For the purpose of this discussion, it is estimated that 25 percent of the high school completors will enter the labor force, along

with 33 percent of the post-secondary completors and 50 percent of the adults enrolled. Using 25 percent and 33 percent presupposes that many vocational education completors will continue their education. At the adult level the use of 50 percent reflects the assumption that half the adults will be enrolled in preparatory programs. The placement rate for this group should be close to 100 percent. Completions are estimated to be 1.25 million at the secondary level, 1 million at the post-secondary level and 2 million at the adult level, for a total of 4.25 million, representing approximately 35 percent of the total enrollment. The number of completors entering the labor market still will fall short of the number of job openings estimated to occur each year. In this respect, the projections do not exceed the probability of job openings that will be available.

Possible Cost of Vocational Education

The magnitude of future costs of vocational education can be derived using the projections described above. While these are estimates and need to be considered in light of the methods by which the projections were developed, the costs can be useful in putting into perspective the consequences of change. In addition, cost estimates can assist in examining current funding patterns and particularly the role federal vocational education funds has had and could have in the future.

The discussion of costs is based on information reported

by the United States Office of Education for 1976. The effect of inflation over the next several years was not taken into consideration in projecting possible costs for 1987. To determine the cost per person, total expenditures for each level as reported by USOE were used. Base costs are $448 at the secondary level, $625 at the post-secondary level, and $73 for adult vocational education. The dollar cost at the adult level does not reflect a true picture in terms of the differentials between preparatory programs and supplementary classes for adults. In the one case, persons attend full-time or at least part-time as in secondary or post-secondary programs; in supplemental or apprenticeship programs, attendance is usually during evenings, and classes are of short duration. This issue is discussed later in relation to alternative concepts of funding vocational education in the period ahead.

Costs derived from the projections produced several ranges. Total expenditures started at a low of $4.35 billion, the same level as 1976, to a high of $5.25 billion, an increase of $900 million. At the secondary level, costs ranged from a low of $2.25 billion to a high of $2.75 billion. Post-secondary costs were estimated to be either $1.86 billion or $2.2 billion, depending upon which of the two options might prevail in 1987. The costs associated with adult vocational education, taking into consideration the explanation discussed earlier, ranged from a low of $241 million (the 1976 level) to a high of $366 million. These estimates are decidedly low in relation to

actual costs. If it were possible to separate the differences in costs between full-time and evening programs, the cost range would be wider.

Based on the consensus viewpoint regarding possible enrollments described earlier, total expenditures for vocational education in 1987 might be approximately $4.78 billion. The expenditure distribution among the three levels would be: secondary--$2.28 billion; post-secondary--$2.2 billion; and adult--$292 million. In comparison to 1976 expenditures, the total is projected to increase by $433 million, with a reduction of $474 million at the secondary level, an increase of $856 million at the post-secondary level, and an increase of $51 million for adult programs.

An analysis of federal vocational education funds, using a similar method to that which was used for examining total expenditures, provides some insights into future costs of federal support for vocational education. What follows is not a justification for maintaining the current level of federal support or providing minimum increases in relation to projected program levels. Rather, the discussion of federal expenditures is included only to point out that the impact of federal dollars, based on current systems of allocating funds among the states and the uses to which they are put, is far less than is intended in vocational education legislation.

In presenting this discussion, funds expended for consumer and homemaking are not included. Based on the report of

expenditures published by USOE for 1976, the total amount of federal funds allocated was $476 million. The expenditure distribution was $290 million for secondary programs, $143 million for post-secondary programs, and $43 million for adult vocational education.

The per person expenditure was $47 at the secondary level, $66 at the post-secondary level, and $14 for adults. Using the same set of projections of enrollments for 1987, the range for total federal expenditures is $476 million (the same as for 1976) to a high of $574 million, representing an increase of $98 million. In terms of the most probable distribution of enrollments presented earlier, the total expenditure of federal funds would be $520 million, an increase of $44 million over 1976. In this projection, the secondary amount would increase by $90 million to $233 million, and the adult program expenditure would increase $8 million to $51 million. The relationship of federal funds to total expenditures for vocational education will not change using this methodology. The federal funds will still represent only 10.9 percent of total expenditures.

IV. FINANCING VOCATIONAL EDUCATION

The presentation of costs of vocational education included in the previous section relates to projected enrollments and does not provide a realistic display of the financial needs for vocational education.

The possible changes in the distribution of persons to be served by vocational education programs projected for 1987 will be influenced to a large extent by the ability of public agencies to obtain needed financial resources to carry out vocational education programs. The previous discussion of projected enrollments and costs was based on national figures without regard to the governance structure of education systems within states. Ultimately this matter will need to be addressed. The savings in costs associated with secondary programs probably will not be shifted to other levels, particularly at the local level. In many cases independent sources of funds are used to support programs at one level compared to another. The local agency responsible for secondary programs in many cases is not the local agency providing post-secondary vocational education. In the same way, several local agencies may be providing programs for adults. Earlier references to the complexity of governance and administration of vocational education support this viewpoint.

In order to understand better some alternatives for financing vocational education in the period ahead, a review

of the past systems of federal financial participation in vocational education may be helpful. The role federal funds played in the development of vocational education is important. Local educational agencies will probably not be able to maintain the current 55 percent share of the cost of vocational education.

Federal Financial Participation

The Smith-Hughes Act of 1917 established for the first time a policy of supporting vocational education in the states with federal money. The policy for sharing in the cost of vocational education was interpreted by the Federal Board for Vocational Education by the statement "...that federal funds are necessary in order to equalize the burden of carrying out the work among the states."[28]

This policy is important to understand. The law did not use the word "equalize" but rather enunciated a policy of cooperation with the states. The intent of the Federal Board was laudable, but to this day it has never really been achieved, if "equalized" is literally interpreted to mean "an equal share" for each of the three participants in vocational education--the federal government, the state, and local agencies. The Federal Board realized that equalizing the burden meant paying some share of the cost of vocational

28. Federal Board for Vocational Education, Bulletin No. 1, p. 7.

education, since the funds could only be spent for salaries and had to be matched with the salary expenses in the states. The cost of providing facilities and maintaining equipment, as well as purchasing supplies, was to be a state and local expense. Thus the disparity in equal sharing was established early on.

The George-Barden Act of 1946 continued the expenditure restrictions on salaries and travel, although it did provide that up to 10 percent of the funds could be used for equipment. By 1946, the practice of salary reimbursement was so ingrained in state policies, and the commitments so firm, it is doubtful that much George-Barden money was spent on equipment.

The Vocational Education Act of 1963 continued the concept of sharing in the cost of vocational education in the states. Even with a broader definition, statement of purpose and expanded definition of the appropriate uses of the funds, the disparity between total cost of vocational education and the federal share increased. Equalizing the burden was lost as a concept. The increased authorization under the amendments of 1968 and 1976 did not achieve any degree of equality among the three levels of government sharing the cost of vocational education.

Table 3 displays reported expenditures of federal, state and local funds for vocational education for each of the years immediately following a major change in federal law. The table shows a continual decline in the federal share of the cost.

TABLE 3

EXPENDITURES OF FEDERAL, STATE AND LOCAL

FUNDS FOR VOCATIONAL EDUCATION--

SELECTED YEARS

Year	Total (000)	Federal (000)	Pct.[a]	Total State & Local (000)	Pct.[a]	State (000)	Pct.[a]	Local	Pct.[a]	R[b]
1918	4,355[c]	1,655	38.	2,700[c]	62.	1,400[c]	32.	1,300[c]	30.	1.63
1947	83,252	21,087	25.	62,164	75.	22,180	27.	39,984	48.	2.94
1964	332,785	55,026	16.5	277,758	83.5	124,974	37.5	152,783	46.	5.04
1969	1,368,756	254,676	19.	1,114,080	81.	467,172	34.	646,907	47.	4.37
1977	4,962,555	533,610	10.7	4,428,944	89.3	NA[d]		NA[d]		8.29

[a]Percentage is of total expenditure.

[b]Ratio of total state & local dollars to federal dollars.

[c]Estimates--data not available for state & local expenditures for 1918.

[d]Data not available--USOE no longer reports state & local expenditures separately.

Expenditures for the years 1918 and 1947 could be misleading in terms of a rather large share of cost borne by the federal government when compared with that of succeeding periods. The actual federal share for the period in which only the Smith-Hughes and George-Barden Acts existed may be somewhat less than the 38 percent and 25 percent reported. It must be remembered that during those years only salaries and some minor additional expenditures were allowable federal expenditures. The way in which federal officials asked that the expenditures be reported resulted in states only reporting the funds that were expended to match the specific purposes of the law. Expenses for operating and maintaining facilities as well as the cost of equipment and supplies, in almost all instances, were not reported since they did not have a direct relationship to the federal expenditures, nor were they permitted to be used for matching the federal share.

Beginning in 1963, federal funds could be used for almost every kind of expenditure for vocational education. Thus, matching funds would of necessity be greater because of the inclusion of expenditures other than salaries of teachers and administrators. A significant increase in federal funds was made available following enactment of the 1968 amendment. The table indicates an increase in the federal share in 1969, but this can be attributed to the increase in the federal funds and the lack of any imperative need on the part of states to report an increase in the amount of state and local share

because of the large overmatch that had already developed. In some cases the inability of states to generate increases in state funds on short notice also contributed to the increase in the federal share. Following 1969, the federal share declined dramatically, for the most part because appropriations held fairly constant. The increasing cost was absorbed primarily by local agencies.

Distribution of Federal Funds Among the States

The Smith-Hughes Act required the distribution of funds according to various cuts of the population. Funds available for agriculture were apportioned to the states based on a ratio of the rural population of the state to the rural population of the nation; trade and industrial and homemaking funds were apportioned using a ratio based on the urban population. Funds for teacher training were distributed on the basis of total population of each state as a ratio related to the entire population of the country. The rationale for using rural population (persons residing in communities of less than 2,500) for agriculture was to direct the funds on the basis of that portion of the population related to agricultural production. In the same way, trade and industrial and homemaking funds were based on the urban population (persons residing in communities of more than 2,500) using the belief that the concentration of occupations in the trades was primarily in the cities. A further restriction required that no more than 20 percent of

the funds allotted for trade and industrial and homemaking be used for homemaking.

Funds for teacher training were to be used for agriculture, trade and industrial education, and homemaking, except that no more than 60 percent and no less than 20 percent could be used for any one of the three subject areas. Essentially this provision was made in order to permit each state to determine the extent of need for teachers in each field, but it assured that at least a portion of the funds would be used for each subject area.

The George-Barden Act of 1946 continued the distribution of funds according to various occupational classifications, but expanded the purposes for which funds could be expended within each classification to include administration, supervision, teacher training, guidance, and other specified activities. The Act added distributive education and fisheries trades to the occupational categories.

Funds available for agriculture were apportioned among the states on the basis of a ratio between farm population of a state and the total national farm population. Home economics funds used the rural population as the basis, trade and industrial education used the non-farm population, and distributive education used the total population. Fisheries' apportionment was at the discretion of the U. S. Commissioner of Education to distribute on an equitable basis taking into consideration the extent of the fishing industry in each state.

Title II of the George-Barden Act, added in 1956, allotted funds to the states for practical nursing on the basis of a ratio of the funds allotted to the states under Title I of the George-Barden Act and the total apportioned for Title I. Title III of the George-Barden Act, dealing with area vocational education programs, was added in 1958 and used the same distribution system as that for Title II.

The pattern for distribution of funds to the states under both the Smith-Hughes Act and the George-Barden Act was based on various systems of using the population of the states and the nation and was distributed for use within specified occupational classifications.

Significant changes in policy were made by the Congress in enacting the Vocational Education Act of 1963. The changes were based on the report of the Panel of Consultants appointed in 1961. Three major changes occurred. First, the distribution of funds was based on the needs of people for preparation for employment as opposed to a distribution based on occupational classifications. Second, age groups in the population rather than segments of the total population were used. Third, a need factor which consisted of a relationship of a state's per capita income compared to the national average per capita income was used to adjust the percentage of the funds apportioned to each of the states based on the number of persons in specified age groups.

The 1963 Act provided that 50 percent of the funds be allotted to the states on the basis of the 15 to 19 age population, 20 percent of the funds allocated on the basis of the 20 to 24 age group, and 15 percent of the funds on the basis of the 15 to 65 population. Each of these ratios resulted in a percentage of the total funds available for distribution and was adjusted upward or downward based on an allocation ratio. The allocation ratio is an index using a relationship between the nation's average per capita income and average per capita income of the state. The result of using the allocation ratio as an adjustment index in effect increases the funds available to poorer states compared to the wealthier states as measured by per capita income. The remaining 5 percent of the funds was distributed to the states using a ratio between the total of the sums determined in the three groupings for each state and the total of the distribution in these groups for all of the states.

The 1963 Act also included a separate authorization for work-study programs. These funds were distributed on a ratio using the population age 15 to 20, without involving the need factor used for basic grant funds.

The Vocational Education Amendments of 1968 continued the same distribution system described for the basic program support category. These amendments also added several new categorical programs including research, exemplary program development, consumer and homemaking, cooperative vocational

education, and work-study programs (continued from the 1963 Act). Research and homemaking funds were distributed to the states using the same system described for basic program support. Distribution of funds for exemplary programs and cooperative vocational education was based on an initial amount of $200,000 to each state, with the residue distributed on the basis of the population age 15 to 19. Work-study funds were distributed on the basis of the age group 15 to 20, as provided originally in the 1963 Act. In addition, a separate appropriation was provided for additional funds to support programs for disadvantaged persons. These funds were distributed on the same basis as state program money.

The 1968 Amendments repealed the George-Barden Act and required that the permanent appropriation under the Smith-Hughes Act be considered an appropriation under the provisions of the 1963 Act, as amended. This action eliminated the variety of allocation processes used up to this time and substituted a single basis for determining the allocation of most of the funds made available for vocational education.

The Vocational Education Amendments of 1976 attempted to simplify even further the system of determining the apportionment of federal funds to the states. The formula devised for the 1963 Act was used for all funds appropriated under the 1976 Amendments. This included the basic grant program (80 percent of the funds appropriated), program improvement and support services (20 percent of the funds appropriated), and

a separate authorization for programs for disadvantaged persons and for consumer and homemaking.

In one form or another, the basic element in each of the distribution systems for vocational education funds has been population. This is consistent in systems used to distribute funds under other federal education programs, such as the Adult Education Act, the Education of Handicapped Children Act, and the Elementary and Secondary Education Act. In each of the pre-1963 Vocational Education Acts, various segments of the population were used without the application of a need factor to adjust for ability to pay. A financial factor relating to wealth is not used in the other types of aid programs identified above.

State and Local Financing of Vocational Education

One of the key issues for the future will be how much vocational education will cost and who will pay for it. Ultimate decisions with respect to the continuation of effective education will have to be concerned with its cost in relationship to the services it can perform and its utility in meeting the needs of people and the labor market.

To illustrate some of the issues surrounding the future costs of vocational education, it is possible to consider the way a changing structure of the population may affect the financing of vocational education. If, for example, enrollments decline as projected for the secondary program, it is possible

that savings in expenditures of public money may result. Another way of considering the matter is to take the position that expenditures will not be reduced because of a decline in the population, but rather the amounts expended will be maintained in order to serve a larger percentage of the secondary school enrollment. At the same time, if enrollments in post-secondary programs increase to the extent projected, there will be a need for a significant increase in financial resources for that level.

There are several ways to consider the financing of vocational education. As a starting point, the current methods of supporting vocational education can be reviewed. Beyond that, consideration can be given to variations of present systems and to totally different approaches that do not have their roots in present systems.

The current system of financing vocational education is based on a sharing of cost among the three levels of government. The burden of cost is not, however, shared equally. The federal share accounts for about 10 percent, the state share is in the vicinity of 35 percent, and local agencies finance the remaining 55 percent. Under this arrangement, the extent of growth of vocational education programs depends on the ability of local agencies to obtain funds from local government units. Local governments are finding it more difficult to increase their share of support. Most local agencies are at the limits of their taxing powers,

or are at the mercy of local taxpayers who must approve increases in school taxes and other local government taxes that support various portions of the public education system.

In most cases, the state share of cost has been somewhat stable. However, any reduction in state support will obviously not permit any expansion, particularly to meet the possible enrollments in 1987.

At 10 percent of total cost, the federal share is viewed as important in assisting with development of new programs, but in many cases it does not make a significant difference in whether vocational education continues or whether it will be expanded to reach more people or new population groups. Under the present financing system for vocational education, only a larger federal share equal to at least one-third of the total cost will make a difference in whether vocational education will continue at its present level or, more importantly, expand to reach more people and new target groups.

To accomplish equalization of the cost of vocational education among the three levels of government would require at least an additional $1.5 billion of federal funds. Along with this sizeable increase must come the recognition that supplanting and maintenance of effort requirements for local agencies would need to be set aside until true equalization is reached. If such a policy of large infusions of new federal money to local agencies were initiated to assist them in

overcoming their disproportionate support of vocational education, the process would need to be different for each level of program and for each governance system. For example, much of the equalization at the secondary level will be accomplished automatically through diminishing enrollments based on the declining secondary school population. To some extent, if the federal government maintained its share at present levels, the reduction in local spending would bring the two into a closer balance over a period of several years. While holding the local share at current levels (adjusted for increased costs due to inflation), the federal share needs to be increased at the post-secondary and adult levels.

Using the secondary program as an example, the cost to serve the current enrollment of 6.16 million students is $2.76 billion of which $2.47 billion are state and local funds and $290 million is federal money. The total cost to serve a projected 5.1 million students in 1987 would be $2.28 billion, of which $1.99 billion would be state and local expenditures, assuming the federal share remains at $290 million. The saving to state and local agencies would be $480 million.

The state and local cost for post-secondary programs was $1.2 billion in 1976. Added to this amount was $143 million of federal funds for a total of $1.35 billion. To serve a projected 3.53 million persons in 1987 would require an expenditure of $2.2 billion, an increase of $1 billion.

The current amount of federal vocational education funds expended at the post-secondary level will not have any real effect on an expenditure increase of this size.

A similar review at the adult level would develop an increase in total cost from the 1976 amount of $241 million to $855 million. The increase of $614 million presupposes that the percentage of adults in preparatory programs will increase from 25 percent to 38 percent and that the cost of preparatory programs will be similar to the cost of secondary programs.

If vocational education became a national system with one governance structure (such as the federal government operating and financing a total national effort), it would be reasonable to assume that savings occurring because of decline at one level would be available to finance increases at another level. In the kind of non-system of vocational education that exists, with the diversity of governance and administrative structures in place and with the many different systems for financing vocational education, it is virtually impossible to assume that funds can be shifted from one element of a total effort to another.

To a greater extent such an action can be taken with federal funds for vocational education, and to a degree a shift can be made with state funds. The real difficulty comes at the local level where programs operate and are governed by a multitude of arrangements and where the greatest differences

exist for raising public money for the support of all education programs. The problem becomes more difficult, when local agencies pay 55 percent of the cost as they do under the present system of financing vocational education.

To illustrate the assumption that savings at one level of program cannot always be used to impact on another level where there is greater need, one need only consider the way public money at the local level is obtained for education purposes. Typically, local secondary programs are operated by independent boards of education with their own taxing authority. Post-secondary institutions are governed by separate boards in many cases. These boards have their own taxing responsibilities. It is unlikely, in a situation such as this illustration, that financial savings obtained by virtue of a reduction in enrollments in high school programs will be made available to a two-year college whose financial requirements have increased due to larger enrollments. The tax base that generates the funds may be different for the two types of educational agencies.

State funds available for vocational education are more easily redirected. Although there are diverse systems in place among states and internally in individual states, it should be possible to realign state-appropriated funds among agencies based on changing needs that may occur. In most instances, particularly where state funds are allocated on an enrollment basis for general support, state aid systems

themselves can redirect funds purely on the basis of differences in enrollment at each level. In cases where state funds are appropriated for specific purposes or on the basis of institutional needs reflected in actual budgets, state authorities can utilize savings accrued at one level for increased needs at another level. There is, of course, no guarantee that such an action will take place. It is entirely possible that states may take advantage of savings to effect an overall reduction in state expenditures, rather than increase support for new or expanded programs for other groups. Regardless of distribution systems states may use, or decisions that will be made with respect to a realignment of available funds, it is believed that states will not, to any great extent, increase their share of the total support for vocational education beyond the approximately one-third share they now provide.

The Role of Federal Funds

The history of federal financial participation in vocational education clearly demonstrates the way changes and readjustment can occur in purposes for which funds are made available. As priorities changed and as new needs and social concerns emerged, federal legislation targeted funds in an attempt to obtain specific results. Beyond the philosophical redirection from an emphasis on occupational programs to specific needs of people that occurred in 1963,

federal funds have been used to assist in alleviating specific shortcomings in the vocational education system or to respond to the needs of special groups of people. Examples of this continuous adjustment or redirection of federal policy include the significant emphasis on construction of needed facilities for vocational education, and requirements with respect to expenditure levels for disadvantaged and handicapped persons.

Additional mandated set-asides and spending requirements have been included over the past several years. These actions on the part of Congress and the federal government, in terms of providing for direct assistance according to the priorities of the moment, demonstrate that there is in reality greatest flexibility to redirect financial resources according to need at the federal level. The system and process are logical. Congress can address national imperatives as they appear. There are, however, several perceived weaknesses in the process that make it less able to respond adequately to the requirements for vocational education in the period ahead.

The first relates to the amount of federal money made available to support state and local efforts. The percentage share of the total cost of vocational education has continually declined from the beginning. Although at one time the federal government shared almost equally with state and local agencies, that share has dropped to less than 11 percent in recent years. Even if state and local funds were redirected according to the extent of projected effort needed to serve persons at the

secondary, post-secondary, and adult levels, the increasing costs to meet projected enrollment levels probably will not be generated by state and local agencies. The federal share will need to be increased significantly in order to utilize vocational education to the optimum of its potential.

Second, while adding new priorities or requirements with respect to expenditure of federal funds for vocational education, Congress historically has at the same time maintained provisions for funds to continue to be used for purposes that do not carry the same level of need as they might have in the past. To be useful, clear trade-offs must be instituted when priorities change or new initiatives are established. To illustrate, in 1976 Congress added a new requirement that a specific percentage of funds be spent for special programs for persons with limited English speaking ability. In addition, direct program assistance to adult women was required. At the same time, the legislation required that states could not spend less money for programs at the secondary level for a period of two years. This had the effect of creating reductions in some aspects of state programs in order to meet the added requirements.

A third problem associated with the distribution of federal vocational education funds to the states relates to the use of a wealth factor in the formula for determining a state's allocation. Per capita income as the adjustment factor came into being in the Vocational Education Act based on a

recommendation of the Panel of Consultants which stated, "A factor of need of a state should be a feature of the formula for distribution, to provide additional amounts to states whose per capita income is below the national per capita income average."[29] The allocation ratio as a need factor, described previously, was conceived as a way of meeting the recommendation.

In use, the allocation ratio adjusts each state's percentage of the total population which then translates into the percentage of funds for each state. This process reduces the amount a wealthier state would receive when compared to its percentage of the total population. In effect, the formula produces a redistribution of a fixed appropriation as opposed to an exclusive increase in the funds to states whose per capita income is lower than the national average. A decidedly different flow of dollars to the states would occur if another interpretation of the Panel of Consultants' recommendation were to be considered. If population became the basis for distributing funds, an additional amount could be made available as an override only to those states whose per capita income was lower than the national average based on an index or percentage generated by the relative disparity between the two per capita income averages.

29. U.S. Office of Education, Report of New Panel of Consultants on Vocational Education, p. 257.

The issue of interpretation of the Panel of Consultants' recommendation and the enactment of a need factor in the formula for distribution of funds is academic at this point. The Panel recognized that some method should be used to assist those states who, through limited financial resources, might be forced to restrict the delivery of a quality vocational education to persons in need of employment preparation. The important issue is whether such a system should result in a redistribution of a fixed amount of money or whether it should be provided as a basic distribution using only population, plus additional amounts based on specific need factors.

The exclusive use of per capita income as a modifier or a need factor can be considered in several ways. First, if it were used to produce an add-on among the low-wealth states, it could be perceived as a way of compensating for certain characteristics of particular states. Second, if it were used to redistribute a fixed amount of money giving the wealthier states less money (as compared to a distribution based solely on population without any modifier), it could be conceived as an equalizing formula. Similarly, any other wealth index, such as percent of total personal income of the state devoted to education, does not provide anything more than another equalizing formula. It does not reach the main issue of targeting funds in relationship to the needs of people, but rather deals solely with ability to pay or the availability of resources to support an education program.

If federal policy with respect to distribution of funds to states should be formulated according to needs of people within the states, then a system has to be devised which takes into consideration both the ability of states to support vocational education and the need for additional funds to provide for the special needs and characteristics of target groups. A viewpoint of this kind is found in the legislative direction of the 1976 Amendments in respect to allocating funds to local educational agencies within the states.

Although it may complicate the formula, consideration might be given to developing indexes or modifiers of a base allotment such as rates of unemployment within each age group, number of persons whose income is below the poverty line, or dropout rates for the school age population. As with using wealth, one problem with using factors of this nature is that they act as disincentives -- they add money to overcome an immediate problem. If the situation improves because of the infusion of new or additional funds, the state gets less in a succeeding year. Perhaps a formula should have incentive factors as well in order to reward states which are effectively utilizing federal funds to deliver a better or more extensive program. An example might be using an index that increases the amount of money alloted to a state when it spends a greater percentage of personal income on education or has a greater-than-average enrollment in vocational education per thousand of population within each group.

It would be useful to examine a variety of approaches in developing future funding allocation policies. The end result of any formula should assure that funds are made available to each state to help it provide quality vocational education according to the needs of its population and its financial ability to do so.

There will be a need to use fresh approaches in defining appropriate and effective ways federal funds can be used in states and developing systems for targeting funds to achieve national priorities.

To meet predictable needs of the future, Congress may need to consider specific problem areas that emerge, using long-term projections that are available and dependable, and at the same time taking into consideration other factors of a less-stable nature that could be addressed if a specific need does occur. This approach will require a considerable amount of flexibility built into federal legislation and sufficient authorization levels so that funds can be appropriated to match short-term requirements. Flexibility of this kind can be accomplished by making major changes in the present authorization categories. For example, understanding that there will be dramatic changes in the age structure of the population, authorizations can be established for each program level (secondary, post-secondary and adult). Based on the projected need annually with respect to the number of persons in each

category, funds can be appropriated accordingly. In addition, separate authorizations can be created for national priorities such as special assistance for disadvantaged or handicapped persons. Funds can be targeted on short-term apparent needs such as the immediate problem of high rates of youth unemployment. If this issue solves itself or it is resolved by some other intervention, funds can be targeted to meet a new need. In this case, it is also probable that the unemployment problem in 1987 may not be with youth but rather with older workers forced out of jobs by younger, better educated workers who can adapt more easily to the increasing knowledge base required by specific occupations. Provision should be made for each redirection of funds among changing priorities.

V. CONSEQUENCES OF CHANGE

Vocational education in the period ahead will be subject to change. The forces and factors that will influence vocational education in the future will be primarily external to the program itself. It will be necessary for the vocational education community to recognize and understand both the changes that will occur and the way in which they will affect the program. Some of the social and economic factors will be national in scope. Other factors may have greater influence within states or in some cases may not be factors at all for some state and local structures.

Vocational education is organized, structured and financed in many different ways. The major concern for policy-makers in particular is the recognition that vocational education cannot stand still. I must continue to look ahead. The consequences of a changing environment in which vocational education exists will, to a great extent, determine the future existence of a publicly supported, publicly operated program.

There is not a single solution to the future of vocational education. Alvin Toffler expressed a viewpoint in regard to the future of education programs which applies equally well to vocational education.

> ...to design educational systems for tomorrow (or even for today) we need not images of a future frozen in amber, as it were, but something far more complicated: sets of images of successive and alternative futures, each

> one tentative and different from the next. ...The possible future is not singular, but plural, subject to the choices we make among innumerable arrayed options.[30]

The issues, forces, and factors are real and the consequences will be significant. To overlook them, or believe that they will not occur, can lead to loss of an educational program that has had a distinguished record of accomplishment, but has been subjected to criticism, primarily for holding on to the past and making the present the future.

Ian Wilson addressed similar concerns in an admonition to corporate management. His concerns are just as appropriate for vocational education.

> ...we simply have to change our casual attitude toward manpower planning. ... The hard reality is that such an attitude -- relying on past experience, past habits, and ad hoc improvisation -- spells deep trouble for any corporation that persists in it. ... such thinking puts the corporation on a collision course with the future.[31]

Planning for the future needs to take a form different than that which is legislatively mandated. It must consider what might occur and display openly the alternatives and

30. Alvin Toffler, Learning for Tommorrow: The Role of the Future in Education (New York: Vintage Books, 1974), p.5.

31. Ian H. Wilson, "The Future of the World of Work," Advanced Management Journal 43:4 (Autumn 1978): pp. 9-10.

options that are possible. In addition, planning for the future of vocational education cannot be done solely by vocational educators. The knowledge, expertise, and viewpoints of persons in the fields of economics, sociology, demography, and finance, as examples, need to be included in any examination of change and its consequences for vocational education. The general public must be consulted as well. It is their viewpoint in respect to the content of educational programs that needs to be considered in establishing goals for vocational education.

In a commentary on the future of vocational education, Mary Ellis reinforced the concept of involvement of external resources and the problem of "do-it-yourself" planning.

> ...all too often, when we confront the question of the future of vocational education, we put on our vocational education hats too soon. All too often, we approach our analyses of the future of vocational education from within our own ranks exclusively. Our perspective is on the inside looking out, rather than on the outside looking in at vocational education. This gives us a limited perspective on where we are, the direction in which we are heading, and what we are heading into.[32]

Enrollments in Vocational Education

Specific factors cannot be considered individually.

32. Mary L. Ellis, "Vocational Education: The Future is Now," Occasional Paper No. 37 (Columbus: National Center for Research in Vocational Education, The Ohio State University, 1978), p. 1.

For example, the structure of the population will change. There will be fewer persons in secondary schools in 1987. The issue of whether enrollments in vocational education will decrease at this level is not a fixed possibility. Conditions and circumstances in relation to other factors may affect the end result. If financing public vocational education continues in the same way as present, with local agencies paying the greatest share, it is entirely possible that sufficient funds will not be available to maintain the current levels of enrollment or increase them. If vocational education is not serving a sufficient number of high school students now, it is also possible that absolute numbers of enrollees can be maintained in the future by serving persons who will not be in either vocational education programs or college preparatory programs.

Financing Vocational Education

The current proportions of support among the three levels of government places an undue and disproportionate share of expense on local agencies. Enrollments at the secondary level cannot be maintained without additional funds from sources other than a local tax base. Possible major increases at the post-secondary and adult levels cannot be accommodated without additional funds from federal sources. Who pays for vocational education in the future will be critical in determining the options policymakers have with respect to the extensiveness

of programs and target groups for vocational education. The possibilities of serving larger numbers of adults in preparatory programs will require significant increases in financial support. The extent of needed services will be affected by the ability of local agencies to obtain funds from state or federal sources in order to respond to emerging needs.

Governance of Vocational Education

The diversity that exists among states in governing and administering vocational education is a matter that will require examination. One common system of governance is not a realistic goal. The extent to which the several autonomous state boards and local authorities are willing to examine their changing roles will affect the viability of meeting possible adjustments in program organization. New target groups will need to be served by vocational education. To do so effectively will require state and local agencies to work together to determine that which each can do best and most economically. Vocational education can become more of a non-system if competition and duplication continue to exist. How vocational education is governed and administered and the role of the several agencies in states will influence the extent to which vocational education can meet changing demands for its services.

National Imperatives

The future of vocational education will depend on its ability to establish itself as an educational program first. Its role must be that of providing opportunities for people to prepare for entrance into employment. Once established as an education program, vocational education needs to be able to respond to pressing social needs, particularly as they change. Priorities for special emphasis will not be fixed or rigid. It may be that youth unemployment and the needs of women are imperatives today, but the consequences of economic and technological influences in the future may result in other imperatives such as structural unemployment of older workers whose skills will no longer be compatible with labor market requirements. Although some of the influences are not easily predictable, vocational education programs should consider the possibilities of these influences and develop the ability to react quickly.

Some Final Words

There is a tendency for vocational educators to become complacent with the current system. If vocational education is to continue to hold a place of significance in the educational system and maintain its relevance to current and future needs, it must display a posture of responsiveness to educational and societal needs.

For years, vocational educators implemented change and

adjustment in programs based on reaction to external forces or criticism. It has been a rare occasion when change was instituted by vocational educators based on their own beliefs. Sufficient examples of this phenomenon exist in the recent history of vocational education to be of concern to those in leadership positions.

The questions for the future cannot depend on the practices of the past. Vocational educators will need to address such questions as: "Is vocational education a social or educational program?"; "Is vocational education designed to serve primarily specified population groups?"; "Is vocational education responsible for overcoming high rates of unemployment, particularly among inner-city youth?"; "What is the relationship among career education, vocational education, technical education, CETA, proprietary education?"; "What constitutes a total system of vocational education?"; "Should there be a single delivery system?"; "To what extent should politically-based structures be involved in the direct delivery of vocational education?"; "Who should make policy in regard to vocational education?"; "Should there be a national policy for vocational education?"; and "Who will be the decision makers with respect to the delivery of vocational education?"

Thomas Jefferson said, "I like the dreams of the future better than the history of the past."

The future of vocational education will need persons who are willing to adopt a similar viewpoint.

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